CLAIMS:

1. A method of forming a non-volatile resistance variable device, comprising:

forming a first electrode over a substrate;

forming a dielectric layer over the first electrode;

forming an opening having sidewalls into the dielectric layer to the first electrode in a manner which produces at least one surface striation in at least a portion of the opening sidewalls;

forming voltage or current controlled resistance setable semiconductive material within the opening in electrical connection with the first electrode, said material having a surface at least a portion of which extends along the at least one dielectric layer striation to form at least one surface striation in the surface portion; and

forming a second electrode in electrical connection with the voltage or current controlled resistance setable semiconductive material received within the opening.

2. The method of claim 1 comprising forming the non-volatile resistance variable device into a programmable memory cell of memory circuitry.

3. The method of claim 1 comprising forming the non-volatile resistance variable device into an antifuse of integrated circuitry.

4. The method of claim 1 comprising forming the non-volatile resistance variable device into a programmable resistance element of integrated circuitry.

5. The method of claim 1 comprising forming the non-volatile resistance variable device into a programmable capacitance element of integrated circuitry.

6. The method of claim 1 comprising forming the non-volatile resistance variable device into a programmable optical element of integrated circuitry.

7. The method of claim 1 comprising forming the non-volatile resistance variable device into a programmable metallization cell.

8. The method of claim 1 comprising forming the non-volatile resistance variable device into an analog memory device capable of being set and reset to a resistance value over a continuous range of resistance values which is a measure of a voltage applied to it over a corresponding range of voltage values.

9. The method of claim 1 comprising forming a plurality of the surface striations in the opening sidewalls and the surface portion.

10. The method of claim 1 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend from proximate the first electrode to proximate the second electrode.

11. The method of claim 1 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line.

12. The method of claim 1 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line from proximate the first electrode to proximate the second electrode.

13. The method of claim 1 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line of least possible distance from proximate the first electrode to proximate the second electrode.

14. The method of claim 1 comprising forming the at least one surface portion striation to contact the dielectric layer.

15. The method of claim 1 wherein the forming of the opening in the dielectric layer comprises etching, the manner comprises forming at least one surface striation in a sidewall of a masking layer opening overlying the dielectric layer, and etching into the dielectric layer to form the dielectric layer opening using the masking layer as an etching mask.

16. The method of claim 1 wherein the forming of the opening in the dielectric layer comprises etching, and the manner comprises forming the at least one sidewall striation during initial dielectric layer etching to form the opening.

17. The method of claim 1 wherein the forming of the opening in the dielectric layer comprises etching, and the manner comprises forming the at least one sidewall striation after dielectric layer etching to the first electrode.

18. A method of forming a non-volatile resistance variable device, comprising:

forming a first electrode over a substrate;

forming a dielectric layer over the first electrode;

forming an opening having sidewalls into the dielectric layer to the first electrode in a manner which produces at least one surface striation in at least a portion of the opening sidewalls;

forming a fast ion conductor material within the opening in electrical connection with the first electrode, said material having a surface at least a portion of which extends along the at least one dielectric layer striation to form at least one surface striation in the surface portion; and

forming a second electrode in electrical connection with the fast ion conductor material received within the opening.

19. The method of claim 18 wherein the fast ion conductor material comprises metal ion-containing dielectric material.

20. The method of claim 18 wherein the fast ion conductor material comprises metal ion-containing semiconductive material.

21. The method of claim 18 comprising forming a plurality of the surface striations in the opening sidewalls and the surface portion.

22. The method of claim 18 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend from proximate the first electrode to proximate the second electrode.

23. The method of claim 18 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line.

24. The method of claim 18 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line from proximate the first electrode to proximate the second electrode.

25. The method of claim 18 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line of least possible distance from proximate the first electrode to proximate the second electrode.

26. The method of claim 18 comprising forming the at least one surface portion striation to contact the dielectric layer.

27. The method of claim 18 wherein the forming of the opening in the dielectric layer comprises etching, the manner comprises forming at least one surface striation in a sidewall of a masking layer opening overlying the dielectric layer, and etching into the dielectric layer to form the dielectric layer opening using the masking layer as an etching mask.

28. The method of claim 18 wherein the forming of the opening in the dielectric layer comprises etching, and the manner comprises forming the at least one sidewall striation during initial dielectric layer etching to form the opening.

29. The method of claim 18 wherein the forming of the opening in the dielectric layer comprises etching, and the manner comprises forming the at least one sidewall striation after dielectric layer etching to the first electrode.

30. A method of forming an analog memory device capable of being set and reset to a resistance value over a continuous range of resistance values which is a measure of a voltage applied to it over a corresponding range of voltage values, said method comprising:

forming a first electrode over a substrate;

forming a dielectric layer over the first electrode;

forming an opening having sidewalls into the dielectric layer to the first electrode in a manner which produces at least one surface striation in at least a portion of the opening sidewalls;

forming a material exhibiting said range of resistance values within the opening in electrical connection with the first electrode, said material having a surface at least a portion of which extends along the at least one dielectric layer striation to form at least one surface striation in the surface portion; and

forming a second electrode in electrical connection with the voltage or current controlled resistance setable semiconductive material received within the opening.

31. The method of claim 30 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend from proximate the first electrode to proximate the second electrode.

32. The method of claim 30 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line.

33. The method of claim 30 comprising forming the at least one sidewall striation and the at least one surface portion striation to extend in a substantially straight line from proximate the first electrode to proximate the second electrode.

34. A method of forming a programmable memory cell comprising providing a body formed of a voltage or current controlled resistance setable material, and providing at least two spaced electrodes on the body, the body comprising a surface extending from one of the electrodes to the other of the electrodes, the surface being formed to comprise at least one surface striation extending from proximate the one electrode to proximate the other electrode at least when the body of said material is in a highest of selected resistance setable states.

35. The method of claim 34 wherein the voltage or current controlled resistance setable material comprises semiconductive material.

36. The method of claim 34 wherein the voltage or current controlled resistance setable material comprises metal ion-containing semiconductive material.

37. The method of claim 34 wherein the voltage or current controlled resistance setable material comprises metal ion-containing dielectric material.

38. The method of claim 34 comprising forming the at least one striation to extend in a substantially straight line.

39. The method of claim 34 comprising forming the at least one striation to extend in a substantially straight line of least possible distance from proximate the one electrode to proximate the other electrode.

40. A method of forming a non-volatile resistance variable device comprising providing a body formed of a voltage or current controlled resistance setable material, and providing at least two spaced electrodes on the body, the body comprising a surface extending from one of the electrodes to the other of the electrodes, the surface being formed to comprise at least one surface striation extending from proximate the one electrode to proximate the other electrode at least when the body of said material is in a highest of selected resistance setable states.

41. The method of claim 40 wherein the voltage or current controlled resistance setable material comprises semiconductive material.

42. The method of claim 40 wherein the voltage or current controlled resistance setable material comprises metal ion-containing semiconductive material.

43. The method of claim 40 wherein the voltage or current controlled resistance setable material comprises metal ion-containing dielectric material.

44. The method of claim 40 comprising forming the at least one striation to extend in a substantially straight line.

45. The method of claim 40 comprising forming the at least one striation to extend in a substantially straight line of least possible distance from proximate the one electrode to proximate the other electrode.

46. A method of structurally changing a non-volatile device having a body formed of a voltage or current controlled resistance setable material and at least two spaced electrodes on the body, with the body comprising a surface extending from one of the electrodes to the other of the electrodes, and with the surface being formed to comprise at least one surface striation extending from proximate the one electrode to proximate the other electrode, the method comprising applying a first voltage between the one and the other electrodes to establish a negative and a positive electrode effective to form a conductive path formed of at least some material derived from the voltage or current controlled resistance setable material and on the surface along at least a portion of the at least one striation.

47. The method of claim 46 comprising after applying the first voltage, applying a second voltage opposite in polarity to the first voltage to reverse formation of the conductive path.

48. The method of claim 46 comprising after applying the first voltage, applying a sufficiently high current to break the conductive path.

49. A method of shorting a non-volatile device having a body formed of a voltage or current controlled resistance setable material and at least two spaced electrodes on the body, with the body comprising a surface extending from one of the electrodes to the other of the electrodes, and with the surface being formed to comprise at least one surface striation extending from proximate the one electrode to proximate the other electrode, the method comprising applying a first voltage between the one and the other electrodes to establish a negative and a positive electrode effective to form a conductive path formed of at least some material derived from the voltage or current controlled resistance setable material and on the surface along the at least one striation effective to electrically short the one and the other electrodes.

50. The method of claim 49 comprising after applying the first voltage, applying a second voltage opposite in polarity to the first voltage to reverse formation of the conductive path.

51. The method of claim 49 comprising after applying the first voltage, applying a sufficiently high current to break the conductive path.

52. A non-volatile resistance variable device, comprising:

a substrate having a first electrode formed thereover;

a dielectric layer received over the first electrode;

an opening having sidewalls extending through the dielectric layer to the first electrode, the sidewall having at least one surface striation in a portion thereof;

a voltage or current controlled resistance setable semiconductive material received within the opening in electrical connection with the first electrode, said material having a portion received on the sidewall surface striation; and

a second electrode in electrical connection with the voltage or current controlled resistance setable semiconductive material received within the opening.

53. The device of claim 52 wherein the at least one sidewall striation extends in a substantially straight line.

54. The device of claim 52 wherein the at least one sidewall striation extends from proximate the first electrode to proximate the second electrode.

55. The device of claim 52 wherein the at least one sidewall striation extends in a substantially straight line from proximate the first electrode to proximate the second electrode.

56. The device of claim 52 wherein the at least one sidewall striation extends in a substantially straight line of least possible distance from proximate the first electrode to proximate the second electrode.

57. A non-volatile resistance variable device, comprising:

a substrate having a first electrode formed thereover;

a dielectric layer received over the first electrode;

an opening having sidewalls extending through the dielectric layer to the first electrode, the sidewall having at least one surface striation in a portion thereof;

a fast ion conductor material received within the opening in electrical connection with the first electrode, said material having a portion received on the sidewall surface striation; and

a second electrode in electrical connection with the voltage or current controlled resistance setable semiconductive material received within the opening.

58. The device of claim 57 wherein the fast ion conductor material comprises metal ion-containing dielectric material.

59. The device of claim 57 wherein the fast ion conductor material comprises metal ion-containing semiconductive material.

60. The device of claim 57 wherein the at least one sidewall striation extends in a substantially straight line.

61. The device of claim 57 wherein the at least one sidewall striation extends from proximate the first electrode to proximate the second electrode.

62. The device of claim 57 wherein the at least one sidewall striation extends in a substantially straight line from proximate the first electrode to proximate the second electrode.

63. The device of claim 57 wherein the at least one sidewall striation extends in a substantially straight line of least possible distance from proximate the first electrode to proximate the second electrode.

64. An analog memory device capable of being set and reset to a resistance value over a continuous range of resistance values which is a measure of a voltage applied to it over a corresponding range of voltage values, said device comprising:

a substrate having a first electrode formed thereover;

a dielectric layer received over the first electrode;

an opening having sidewalls extending through the dielectric layer to the first electrode, the sidewall having at least one surface striation in a portion thereof;

a material exhibiting said range of resistance values received within the opening in electrical connection with the first electrode, said material having a portion received on the surface striation; and

a second electrode in electrical connection with the voltage or current controlled resistance setable semiconductive material received within the opening.

65. The device of claim 64 wherein the at least one sidewall striation extends in a substantially straight line.

66. The device of claim 64 wherein the at least one sidewall striation extends from proximate the first electrode to proximate the second electrode.

67. The device of claim 64 wherein the at least one sidewall striation extends in a substantially straight line from proximate the first electrode to proximate the second electrode.

68. The device of claim 64 wherein the at least one sidewall striation extends in a substantially straight line of least possible distance from proximate the first electrode to proximate the second electrode.

69. A programmable memory cell comprising a body formed of a voltage or current controlled resistance setable material, and at least two spaced electrodes on the body, the body comprising a surface extending from one of the electrodes to the other of the electrodes, the surface comprising at least one surface striation extending from proximate the one electrode to proximate the other electrode at least when the body of said material is in a highest of selected resistance setable states.

70. The cell of claim 69 wherein the voltage or current controlled resistance setable material comprises semiconductive material.

71. The cell of claim 69 wherein the voltage or current controlled resistance setable material comprises metal ion-containing semiconductive material.

72. The cell of claim 69 wherein the voltage or current controlled resistance setable material comprises metal ion-containing dielectric material.

73. The cell of claim 69 wherein the at least one sidewall striation extends in a substantially straight line.

74. The cell of claim 69 wherein the at least one sidewall striation extends in a substantially straight line of least possible distance from proximate the one electrode to proximate the other electrode.

75. A non-volatile resistance variable device comprising a body formed of a voltage or current controlled resistance setable material, and at least two spaced electrodes on the body, the body comprising a surface extending from one of the electrodes to the other of the electrodes, the surface comprising at least one surface striation extending from proximate the one electrode to proximate the other electrode at least when the body of said material is in a highest of selected resistance setable states.

76. The cell of claim 75 wherein the voltage or current controlled resistance setable material comprises semiconductive material.

77. The cell of claim 75 wherein the voltage or current controlled resistance setable material comprises metal ion-containing semiconductive material.

78. The cell of claim 75 wherein the voltage or current controlled resistance setable material comprises metal ion-containing dielectric material.

79. The cell of claim 75 wherein the at least one sidewall striation extends in a substantially straight line.

80. The cell of claim 75 wherein the at least one sidewall striation extends in a substantially straight line of least possible distance from proximate the one electrode to proximate the other electrode.